

jean-françois pambrun

researcher | engineer | software developer

about

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linkedin://jpambrun
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languages

french/english

programming

java, javascript
matlab, python
linux, git, c, c++
latex, tensorflow
azure, mongodb
docker, gcs
kubernetes
node, sql
postgres

standards

dicom, ihe, hl7
jpeg 2000, jpip

interests

medical imaging
image compression
machine learning
image analysis
infrastructure
performance
scalability
rendering

education

- | | |
|-----------|--|
| 2011-2016 | Ph.D. in electrical engineering École de technologie supérieure (ÉTS)
improving medical image compression and transmission <ul style="list-style-type: none">• develop a novel image quality metric adapted to diagnostic imaging• propose a novel jpeg 2000 bit allocation mechanism• improve streaming for large image series (ct, mr, tomo, etc.)• skills: research, compression, streaming, matlab, java, c++, itk/vtk |
| 2009-2010 | M.Eng. in electrical engineering (incomplete†) École de technologie supérieure (ÉTS)
evaluation of the diagnostic quality of lossy compressed medical images <ul style="list-style-type: none">• study medical image quality assessment and diagnostic losslessness• quantify the ct acquisition parameters that affect compressibility• skills: research, compression, matlab, java, c++, itk/vtk, cuda |
| 2005-2009 | B.Eng. in electrical engineering École de technologie supérieure (ÉTS)
information technologies and telecommunication specialization |

experience

- | | |
|--------------|--|
| 2020-present | Principal Architect Change Healthcare
cloud-based PACS lead architect <ul style="list-style-type: none">• lead a team of architects building the next generation of cloud PACS• oversee all application areas including frontend, backend and infrastructure• define and measure key performance indicators• implement POCs to support technology choices and orientations• implement production monitoring and observability infrastructure• lead production issue investigations as they arise• skills: node, kubernetes, gcp, chromium, dicom, high-availability |
| 2018-2020 | Data Scientist Change Healthcare
FDA-approved pixel-based body-part classification for more relevant priors <ul style="list-style-type: none">• work with academic and clinical partners to acquire anonymized data• design data ingestion and cleaning pipelines• implement 3d bounding box dicom labeling tool across frames of reference• design machine learning models• train and validate models with proper data sampling• skills: python, javascript, tensorflow, postgres, machine learning, k8s, gcp |

† not a member of the OIQ

‡ fast-track phd admission

experience (cont.)

2016-2018	Software Developer cloud-based diagnostic workstation with client-side MPR <ul style="list-style-type: none">· design and implement a client-side multi-planar reconstruction renderer· design and implement a 3d compression algorithm for fast streaming· design and implement annotation tools such as length, cobb angle, etc· write highly optimized code using the latest web technologies· ensure support for ct, mr, pet, ultrasound, large tomosynthesis, etc· skills: javascript, nosql, mongodb, python, node, webgl, rendering, docker	nucleus.io
2016 (jun-dec)	Postdoctoral Fellow improve image-guided prostate cancer brachytherapy treatments <ul style="list-style-type: none">· implement mr-ultrasound fusion and segmentation using machine learning· study the impact of dual energy ct (dect) on current registration algorithms· evaluate an experimental non-rigid mr-us fusion workflow in the operating room· skills: python, tensorflow, machine learning, registration, segmentation	CHUM research centre
2009 (jan-sep)	Software Developer head-up display simulation for military flight simulators <ul style="list-style-type: none">· implement c/c++ modules to stimulate and simulate avionic systems· implement an opengl solution to simulate a fighter hud· work with clients to address issues and achieve acceptance· skills: c, c++, pascal, opengl, simulation	CAE inc.
2006-2008	Research Assistant implementation of a standard compliance validation tool for hl7v3 <ul style="list-style-type: none">· implement a hl7v3 for validation prior to connectathon· provide support for implementors· skills: java, xml, xml schemas, xslt, soap, dicom, ihe, hl7 implementation and evaluation of a medical image streaming framework <ul style="list-style-type: none">· evaluate jpip for large image stacks and large image streaming· skills: java, jpip, jpeg 2000	École de technologie supérieure (ÉTS)

awards

2017	NSERC postdoctoral fellowship (declined)	90,000\$
2017	FRQNT postdoctoral fellowship (declined)	70,000\$
2016	GRSTB postdoctoral fellowship	18,000\$
2011	NSERC doctoral Alexander-Graham-Bell scholarship	105,000\$
2011	ÉTS excellence graduate student scholarship	60,000\$
2011	FRQNT doctoral research scholarship (declined)	60,000\$
2009	FRQNT master's research scholarship	30,000\$
2006	NSERC undergraduate student research award	4,500\$

publications

articles in peer-reviewed journals

Deep Learning Body Region Classification of MRI and CT Examinations

Raffy P. , Pambrun J.F., Kumar A., Dubois D., Patti J., Cairns R., Young R.

Journal of Digital Imaging. Springer, 2023

The utilization of MRI in the operating room

Ménard C , Pambrun J-F, Kadoury S

Brachytherapy. Elsevier, 2017

Computed Tomography Image Compressibility and Limitations of Compression Ratio-Based Guidelines

Pambrun J.F. , Noumeir R.

Journal of Digital Imaging. Springer Science, 2015

Teaching DICOM by Problem Solving.

Noumeir R. , Pambrun J.F.

Journal of Digital Imaging. Springer Science, 2012

Streaming of medical images using JPEG2000 interactive protocol

Pambrun J.F. , Noumeir R.

International Journal of Innovative Computing and Applications. 2012

Using JPEG 2000 Interactive Protocol to Stream a Large Image or a Large Image Set

Noumeir R. , Pambrun J.F.

Journal of Digital Imaging. Springer Science, 2010

international peer-reviewed conferences/proceedings

Limitations of the SSIM quality metric in the context of diagnostic imaging

Pambrun J.F. , Noumeir R.

IEEE International Conference on Image Processing (ICIP), 2015

Compressibility variations of JPEG2000 compressed computed tomography

Pambrun J.F. , Noumeir R.

IEEE International Conference of the Engineering in Medicine and Biology Society (EMBC), 2013

Learning DICOM by solving real clinical problems

Noumeir R. , Pambrun J.F.

IEEE-EMBS International Conference on Biomedical and Health Informatics, 2012

Perceptual quantitative quality assessment of JPEG2000 compressed ct images with various slice thicknesses

Pambrun J.F. , Noumeir R.

IEEE International Conference on Multimedia and Expo, 2011

Interoperability testing of integration profiles based on HL7 standard version 3

Pambrun J.F. , Noumeir R.

IEEE International Conference on Information Technology and Applications in Biomedicine, 2010

Hands-on Approach for Teaching HL7 version 3

Noumeir R. , Pambrun J.F.

IEEE International Conference on Information Technology and Applications in Biomedicine, 2010

Streaming of Medical Images Using JPEG 2000 Interactive Protocol

Noumeir R. , Pambrun J.F.

IEEE International Conference on Systems, Signals and Image Processing. 2010

Interoperability Testing Software for Sharing Medical Documents and Images

Berube R. , Pambrun J.F, Noumeir R.

IEEE International Conference on Internet and Web Applications and Services. 2010

Images within the Electronic Health Record

Noumeir R. , Pambrun J.F.

IEEE International Conference on Image Processing. 2009